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THE LIFE AND WORKS OF EDWARD PAYSON VAN DUZEE[1]

BY E. O. ESSIG and R. L. USINGER

University of California

Edward Payson Van Duzee was born at Number 36, East 22nd Street, New York City on April 6, 1861. Perhaps his greatest inspiration during his early years came from his father, William Sanford Van Duzee, a man of remarkable and varied talents and ability, who was a missionary to the Hawaiian Islands with one of the first expeditions in 1837. W. S. Van Duzee was later a dentist, a teacher and a builder and evidently maintained an active interest in scientific work throughout his life. Of his large family, only two sons, Millard C. (Pan-Pac. Ent., 10:90-96, portrait) and Edward P., followed scientific work. In 1861 the elder Van Duzee, whose home was in Buffalo, New York, was engaged as a building contractor in New York City. Within a week after the birth of Edward, the firing on Fort Sumpter initiated the Civil War and necessitated the closing out of building operations and the return of the Van Duzee family to their Buffalo home. Concerning this period, E. P. Van Duzee has written as follows[2]:

"My father as soon as he could close up his business in New York returned with his family to his home in Buffalo, and that city and its suburbs was my home for more than fifty years. Before transferring his business activities from Buffalo to New York father had purchased from James Fitz of Brooklyn a large acromatic refracting telescope, having an eighteen inch objective, that Mr. Fitz had constructed for the University of Virginia and which had been left on his hands through the stress of war conditions then prevailing in Virginia. This instrument is listed in the 8th edition of the Encyclopedia Britannica as one of the three largest refracting telescopes then made. On securing this large instrument father sold his smaller one to Hobart College and erected a three-story addition to his home, with the necessary equipment for the equatorial mounting of his large instrument. On the floor below the observatory he had five large rooms in which he installed the really extensive natural history collections he had accumulated

[1] Read before the 162nd meeting of the Pacific Coast Entomological Society on September 21, 1940.

[2] From a short autobiographical sketch of Edward Payson Van Duzee, typed in January, 1940.

through many years of active scientific work. The largest room was devoted to father's special interest, the birds, of which a representative of each species was mounted in a box having a background finished somewhat after the fashion of the habitat groups now so popular in museums. Other rooms contained collections in mineralogy, conchology and miscellaneous subjects. Some of this material he had accumulated while a missionary in the Hawaiian Islands and in travels about the country, and some he had obtained by purchase.

These collections and the observatory were open to the public free on certain days each month and father's place became the rendezvous for those in Buffalo who were interested in Natural History, and it was in these rooms that a few of the more earnest workers in natural science met together and decided to organize the Buffalo Society of Natural Science.

Such was the environment in which my boyhood days were spent and it formed, not only in me but also in my older brother, Millard C. Van Duzee, a deep-seated love of nature and a strong collecting diathesis which neither of us ever outgrew. This love of nature was still further strengthened by an intimate association with nature on father's farm at Lancaster, ten miles east of Buffalo where our summers were spent. There we ran wild in the fields and woods, often accompanying father on his hunting trips for birds and for other objects for his collection. Our education was largely obtained at private schools or under private tutors, but our real scientific training came from actual contact with nature under able guidance, and from the study of nature in father's large collections. Much of my early work was done in botany and geology and a little later in astronomy. In the latter study I devoted myself largely to work in the observatory, making nightly observations with the telescope, recording sun spots and keeping meteorological records. It was also during this period my duty to preside at the telescope when classes in astronomy were visiting the observatory, and to explain to the students the objects at which they were looking. During all this time, however, my real interest was gradually turning toward entomology under the guidance of Mr. Augustus R. Grote, then the director of the Buffalo Society of Natural Science, and the leading authority on American moths. Mr. Grote encouraged my brother and me to sugar for moths, taught us how to prepare and spread our specimens and helped us by making the determinations of our captures. Millard and I spent many happy days with him. He would exhibit with enthusiasm some of the new or rare Noctuids he had just received from Belfrage, Behrens, or others of his numerous correspondents, and explain to us the characters distinguishing the new species from allied forms. On one of these visits Mr. Grote advised me to take up the study of some group of insects, and recommended the Hemiptera."

In 1883 William Sanford Van Duzee died and his two entomologically inclined sons set out on the course of their life work. Millard carried on as a building contractor while Edward took some special laboratory work from March to July at Yale University under Prof. A. E. Verrill. Here he met and worked with S. W. Williston, one of the leading dipterists of the country. In March of 1885, through Henry A. Ward, an old friend of his father, E. P. Van Duzee became assistant librarian of the Grosvenor Library of Buffalo. This was exclusively a research library and hence provided ideal surroundings for the scientific work which was to occupy most of his waking hours during the next half century. With a medium power monocular microscope and his collection within reach, much of his early work on the Homoptera was done while not actually cataloguing and dispensing books at his desk. Other work was done evenings and Sundays in the house which he built at 17 Putnam Street. Here, by his first wife, Julia, were born his son, Edward Heath, who still resides in Buffalo, and his daughter, Mabel, now assistant professor of English at the University of Colorado. During these years, in addition to his work on the Hemiptera, Mr. Van Duzee collected generally, publishing lists of the Lepidoptera and of the dragonflies of Buffalo and vicinity. After ten years he was advanced to head librarian, which position he held for an additional 18 years. During these 28 years he acquired a knowledge of books and bibliographical methods which made him one of the foremost Hemiptera bibliographers of his time. Moreover, on yearly trips to library conventions and while purchasing books for the Grosvenor Library, he was able to visit the entomologists at the U. S National Museum and, on at least two occasions in 1885 and 1888, a fellow librarian and the foremost hemipterologist of America, Philip Reese Uhler of Baltimore. Dr. Uhler was a constant source of inspiration through correspondence and must have welcomed such able assistance because of his own failing eyesight.

The first twenty-five years of Mr. Van Duzee's work covered one of the most productive periods in the history of hemipterology. Following upon the foundations laid by the greatest hemipterist of all time, Carolus Stål, came such men as E. Bergroth, G. C. Champion, W. L. Distant, O. H. Heidemann, Geza Horvath, G. W. Kirkaldy, A. L. Montandon, L. Lethierry, B. R. Poppius, and O. M. Reuter. All of these men are now

dead, but Mr. Van Duzee actually belonged to their era and his copious letter files, now a part of the historical files of the California Academy of Sciences, contain his regular correspondence with these men.

Although pursuing a full time librarian's job Mr. Van Duzee kept constant contact with the field through week-end trips, even during the winter when he often went out in search of hibernating forms around Buffalo or at his father's farm at Lancaster. This was a fortunate pastime for one confined so largely to clerical work and no doubt contributed to his long life of vigorous activity which never flagged to the very end. Several longer trips were taken during these years of residence in the East and have since become well-known as the type localities of many of his new species. The more important of these trips were to Muskoka Lake, Ontario, Canada, in 1888; Michigan in 1891; Georgia in 1899; Colorado in 1900 and in 1903; the Adirondack Mountains, New York, and to New Jersey in 1902; Ohio in 1905; the Island of Jamaica in 1906; Florida in 1908; the White Mountains of New Hampshire and to Massachusetts in 1909; and to Ottawa and Quebec, Canada, in 1912.

Soon after the turn of the century the long and arduous task of writing his catalogue of the Hemiptera was begun. This work went on for about ten years, occupying an increasing amount of his time. The excellent library facilities of the Eastern United States were all available to supplement his own very complete library so the resulting catalogue proved to be an exhaustive treatise and a model or standard of excellence for such bibliographical work. While still collecting information, verifying citations (he personally checked each separate reference in the final manuscript), and untangling the perplexing problems of synonymy, the Grosvenor Library had been moved to larger quarters and increased to a staff of about fourteen. It is small wonder, under the circumstances, that a nervous condition developed in 1912 which threatened his health and caused him to sever his connections in Buffalo and move West. After a brief visit with his old friend, E. D. Ball in Colorado, he continued on to San Diego where he visited with Mr. J. L. Rose of Alpine. Here he soon recuperated and spent six months collecting Hemiptera in this very nearly virgin field. The results of this work were published in the Transactions of the San Diego Society of Natural History. In 1913 he obtained a position in the library of the

Scripps Institution of Oceanography at La Jolla, which position he held through 1914. During this period he was able to resume work on his catalogue and completed a rough draft of the final work. With no apparent prospect of its immediate publication he drew up a check list containing only the names, original references, and distribution. This was published by the New York Entomological Society and served to validate the many higher group names proposed for the first time.

Through Prof. W. E. Ritter, then director of Scripps Institution, Prof. C. W. Woodworth, head of the division of entomologoy of the University of California, offered Mr. Van Duzee a position as instructor in entomology at the University of California. The position was accepted in August, 1914, and Mr. Van Duzee immediately applied himself to two tasks, the completion of his catalogue and the building up of the collection of insects at the University. The material which he collected still forms the basis of the University's insect collection, while his catalogue of 916 pages was accepted by the University of California Press. This monumental work appeared not only as Volume 2 of the University of California Publications in Entomology but also as one of the Semicentennial Publications of the University, with a few copies specially bound in this latter series. Teaching never appealed to Mr. Van Duzee and his activities along this line were limited to field instruction, particularly with the entomological field class of the University of California Summer School which was held at Fallen Leaf Lake in the high Sierra from June 21 to July 31, 1915, under the direction of Dr. E. C. Van Dyke. A report of the many new species collected on this trip and several other important studies on the Hemiptera were published at this time in Volume 1 of the University of California publications in entomology. Mr. Van Duzee lived on Woolsey Street during his early days at the University. After his second marriage he remained for a time in Berkeley and then moved to San Francisco.

In the decade since the great fire and earthquake of 1906, the California Academy of Sciences had been gradually rebuilding its collections and library. The large insect collections of former years, built up by curators Herman Behr (1862-1867 and 1881-1904), Richard H. Stretch (1868-1880), and E. C. Van Dyke (1904-1916), were completely destroyed but for 300 specimens of type material saved by the courageous action of Miss Alice East-

wood, curator in botany. This material included the types of the Coleoptera, Hymenoptera, and Hemiptera from the early expeditions to Lower California. With this upon which to build, Dr. Van Dyke carried on for the next ten years in conjunction with his medical practice. Material accumulated during this time included the Grundell collection of about 3,000 specimens, the W. S. Wright collection of about 2,000 specimens, the fine series of insects taken by F. X. Williams on the Academy's expedition to the Galapagos Islands, numbering about 4,000 specimens, the material taken by Mr. Joseph Slevin, mostly in Arizona, by Dr. Thompson in the Orient, and by Dr. Van Dyke from extensive field work throughout the west coast. In all, this material was estimated by Mr. Van Duzee at about 30,000 specimens, a very substantial start toward rebuilding what had been the finest collection of insects in the West.

On June 1, 1916, Mr. Van Duzee accepted the positions of librarian and curator of entomology at the California Academy of Sciences. The latter position was open because Dr. Van Dyke had just taken up teaching and systematic work at the University of California. Mr. Van Duzee held the position of assistant librarian of the Academy for eleven years until a full time librarian was employed. For the first seven years he resided on Ninth Avenue in San Francisco near the Academy. Here it was possible to work evenings and in this he was helped by his wife, Mrs. Helen Van Duzee, who assisted him in the library and made a collection of spiders while he was devoting his energies to the Hemiptera. Later they moved to Mill Valley where they built a cabin and lived for one year and then moved to 1212 Fountain Street, Alameda, where the family home is still located.

During Mr. Van Duzee's twenty-four years at the Academy, starting at the age of 55 years, he built another monument to his lifetime of industry and entomological zeal. With the hearty cooperation of the entomologists of the west, the collections grew from 30,000 specimens to well over one million mounted specimens. Five thousand holotypes and allotypes of new species were accumulated and, of even greater importance, this vast amount of material was prepared beautifully and with meticulous care. The best modern technique for handling pinned material was employed with an improved type of unit tray system, glass tops and bottoms on the Lepidoptera cases, and endless details

which make the Academy collection one of the neatest and best cared for collections in the world today. It should be emphasized that all of this was accomplished with relatively limited funds and assistance, so that much of the routine fell upon Mr. Van Duzee and the volunteer help of such faithful friends of the Academy as F. E. Blaisdell and E. C. Van Dyke. The favorable conditions at the Academy attracted many large collections which were obtained either by gift or purchase. The largest of these are listed below in the order in which they were received.

	SPECIMENS
E. J. Newcomer collection of Lepidoptera, 1917	1,737
R. H. Stretch collection of moths (Loan from the University of California) 1923	3,146
E. C. Van Dyke collection of Coleoptera, 1924	200,000
H. M. Holbrook collection of butterflies, 1924	500
E. P. Van Duzee collection of Hemiptera, 1924	35,184
F. E. Blaisdell collection of Coleoptera, 1925	125,000
J. C. Huguein collection of Lepidoptera, 1925	1,870
Albert Koebele collection of insects (purchase), 1925	100,000
L. S. Slevin collection of Coleoptera, 1927	30,300
C. L. Fox collection of Hymenoptera, 1928	16,700
J. O. Martin collection of Coleoptera, 1928	12,000
Norman R. Gunn collection of Lepidoptera, 1932	3,300
M. C. Van Duzee collection of Diptera, 1934	29,500
Adalbert Fenyes collection of Coleoptera, 1937 (purchase)	100,000
William Hovanitz collection of Lepidoptera, 1939	3,000
Graham Heid collection of butterflies, 1939	4,000
E. G. Linsley collection of Cerambycidæ, 1939	50,000
F. C. Hadden collection of Philippine Coleoptera, 1939	200,000

In addition to these large collections which were received as units, a vast amount of material was collected by Mr. Van Duzee and members of his staff while Dr. Van Dyke and Dr. Blaisdell continued to add to their already large collections, contributing fifteen thousand or more insects each year. During these years Mr. Van Duzee made extensive trips to the San Jacinto Mountains in 1917; Siskiyou County in 1918; Huntington Lake in 1919; Washington State and Vancouver Island in 1920; the Gulf of California in 1921; Utah in 1922; Southern California in 1923; Arizona in 1924; Truckee, California, and Nevada in 1927; Fort Collins, Chicago, Buffalo, Ithaca, New York City,

Boston, Philadelphia, Washington, D. C., Pittsburg, Urbana, Decatur, and Ames, on a trip to attend the Fourth International Congress of Entomology at Ithaca in 1928; and the Owens Valley in 1929. Only shorter trips were taken during the next decade because of the failing health of Mrs. Van Duzee's mother, who required constant attention and care. These short trips took him again to many of his former collecting places in California but much of this travel was incidental to the business of administering the large collections in his care and soliciting new material.

Other material accumulated at the academy includes a fine entomological library, obtained by judicious purchases and recently augmented by the donation of Dr. Van Dyke's excellent library consisting of 1,000 volumes and 1,000 separates, bulletins, etc., on the Coleoptera and general entomology and Dr. Isabel McCracken's library, which is particularly strong in the Hymenoptera.

Members of the Pacific Coast Entomological Society had long felt the need for a special entomological journal devoted to western entomology and had actually planned such a journal to be called the "Pacific Coast Entomologist." However, the uncertainty of conditions during the first World War made the venture inadvisable at that time. In 1924 the project was carried through, due to the vision and faith of E. P. Van Duzee, E. C. Van Dyke, F. E. Blaisdell, E. O. Essig, G. F. Ferris, R. A. Doane, Grant Wallace, W. W. Henderson and J. C. Chamberlin. The bulk of the work fell upon the shoulders of Mr. Van Duzee as editor, and Dr. Blaisdell as treasurer, but the entire Publication Committee contributed in no small measure to finance the new venture. To Mr. Van Duzee goes a large part of the credit for the style and standard of excellence which he built up while acting as editor during the first fourteen years of existence of the Pan-Pacific Entomologist. Few people realize the sacrifices of his own research which Mr. Van Duzee made while building this journal up to its present respected position among the entomological journals of the world. Continuing through the year 1938, he never relaxed his editorial vigilance and only turned the work over to others when the pressure of routine duties and failing health forced him to do so.

In the latter part of May, 1940, Mr. Van Duzee, accompanied by his wife, drove to Los Angeles where he was occupied with

Academy business. While enroute to a collecting place in the Coachella Valley, he was suddenly taken ill and decided to return to his home in Alameda. A trained nurse was employed to accompany them as far as Fresno. Here, after a night's rest, Mr. Van Duzee's condition was considerably improved so the nurse was permitted to return to Los Angeles while Mrs. Van Duzee drove her husband home. The following day he entered the Alameda Hospital for observation and rest. Having been informed by his physician that he would be unable to return to his work and being so concerned about the future of the Academy, he called his assistant, E. S. Ross, to his bedside and discussed with him at length the problems having to do with the care of the insect collections. Although appearing to respond immediately with hospital care, he died suddenly on the next day, June 2. Funeral services were held Wednesday, June 5, 1940, at 3:00 o'clock p. m. at the Mausoleum Chapel at Mountain View Cemetery, Oakland, in which cemetery he was buried. His funeral was attended by a large group of his entomological friends from all parts of the state.

The regular July meeting of the California Academy of Sciences was devoted to a commemoration of the life and work of Mr. Van Duzee. The meeting was held in the entomological laboratories of the Academy on Wednesday afternoon, July 10, at 4:00 p. m. Short commemorative and appreciative addresses were delivered by E. C. Van Dyke, E. O. Essig, W. B. Herms, R. C. Miller, and F. M. MacFarland.

Mr. Van Duzee will long be remembered for his industry and devotion to the causes for which he worked. Throughout his life are scattered landmarks which will stand as his everlasting monuments. He was a link between the older generation of nineteenth century hemipterists and our present-day workers. At the time of his death he was dean of the hemipterists of the world, succeeding to that exalted place upon the death of his friend and correspondent, the eminent Hungarian hemipterist, Dr. Geza Horvath.

Prominent as a member and loyal in his support of scientific societies and journals, Mr. Van Duzee was or had been a member of the following societies: American Entomological Society, American Association of Economic Entomolgists, American Museum of Natural History, Brooklyn Entomological Society, Buffalo Historical Society, Buffalo Society of Natural Sciences,

Cambridge Entomological Club, Ecological Society of America, Entomological Society of Ontario, Kansas Entomological Society, National Geographic Society, Philadelphia Academy of Natural Sciences, Southern California Academy of Sciences, and Western Society of Naturalists. He was a fellow of the American Association for the Advancement of Science, a patron of the California Academy of Sciences, a fellow and charter member of the Entomological Society of America and vice-president in 1934, an honored member of the Pacific Coast Entomological Society and a fellow of the San Diego Society of Natural History.

During his lifetime Mr. Van Duzee accumulated several separate collections. His Lepidoptera, mostly from Buffalo and vicinity, are now part of the collection of the Buffalo Society of Natural History. The Coleoptera collected in Florida and Jamaica went to his friend H. F. Wickham and thence to the United States National Museum. An extensive collection of Hemiptera, 'including a full series of his types up to that time,"[3] was sold to Iowa State College in 1897. A large general collection was accumulated for the University of California during the years 1914-1915. Finally his collection of Hemiptera in 1925, including about 30,000 specimens, was given to the California Academy of Sciences and was augmented by approximately 100,000 insects of all orders collected subsequently in general field work by him for that institution. A considerable collection of land shells was likewise accumulated, including some interesting species collected by his father in Hawaii in 1837. This collection is a part of the undistributed estate at present.

In recognition of his extensive field work while pioneering in little explored territory, a large number of species and two genera have been named in honor of Mr. Van Duzee. Seventy-seven of these are listed at the end of this paper.

Mr. Van Duzee published a total of 250 papers, comprising 2821 pages, in the fifty-five years between 1885 and 1940. During this period there were only four years at scattered intervals when no papers appeared from his pen. In general, these papers are descriptions of new species, extensive faunal lists, and short notes. A few are monographic treatments of particular groups for North America whereas the check list and catalogue are monumental bibliographical works. In these works he described a total of 895 new species, subspecies, or varieties, 47 new

[3] Osborn, Herbert. 1937. Fragments of Entomological History, p. 297.

genera or subgenera, 12 new names for species, subspecies or varieties, 5 new names for genera, and 33 higher group names, these last consisting largely of new names for old subfamily or tribal concepts in order to bring the nomenclature of the higher groups of Hemiptera into conformity with that of other orders.

A list of all of the names proposed by E. P. Van Duzee is given at the end of this work. The names have been arranged systematically according to the arrangement in his catalogue (1917) for higher groups and alphabetically for genera and species. All names are given in their original form and combination. The number immediatcly following the name and preceding the colon refers to the bibliographical reference in the complete Van Duzee bibliography at the end of this work, while the number following the colon refers to the page on which the name was proposed. A valuable list of the "Types of genera established by the author" up to 1909 is given in the Canadian Entomologist, 41:380-384.

Biographical notes, pictures, and death notices of E. P. Van Duzee have appeared in several places as listed below.

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———. Millard Carr Van Duzee, in Memoriam. Pan-Pac. Ent., 10:90-96, portrait, 1934.

Some Genera and Species Named in Honor of E. P. Van Duzee

GENERA

Vanduzea Goding.

Vanduzeeina Schouteden.

SPECIES

Arachnida

Sassacus vanduzeei Chamberlin.

Chelanops vanduzeei J. C. Chamberlin.

Orthoptera

Clematodes vanduzeei Hebard

Esselenia vanduzeei Hebard.

Hemiptera

Acalypta vanduzeei Drake.
Aradus duzeei Bergroth.
Aradus vanduzei Heidemann.
Chlorotettix vanduzei Baker.
Cinara vanduzei (Swain).
Cyclokara vanduzei (Ball).
Cyrtolobus vanduzei (Goding).
Derœocoris vanduzeei Knight.
Deltocephalus vanduzei Gillette and Ball.
Dorycephalus vanduzei Osborn and Ball.
Eutettix vanduzei Gillette and Baker.
Gargaphia vanduzeei Gibson.
Geocoris duzeei Montandon.
Idiocerus duzeei Provancher.
Lamproscytus vanduzeei Reuter.
Liburnia vanduzeei (Crawford).
Lygus vanduzeei Knight.
Macrotylus vanduzeei Knight.
Melanostictus vanduzeei Reuter.
Mezira vanduzeei Usinger.
Micronecta vanduzeei Kirkaldy.
Nabis vanduzeei (Kirkaldy).
Okanagana vanduzeei Distant.
Phlepsius vanduzei Ball.
Phytocoris vanduzei Reuter.
Pilophorus vanduzeei Knight.
Platylygus vanduzeei Usinger.
Platypedia vanduzeei Davis.
Pycnoderes vanduzeei Reuter.
Rhinocapsus vanduzeii Uhler.
Scolops vanduzei Ball.
Typhlocyba vanduzei (Gillette).
Xerophlœa vanduzeei Lawson.

Coleoptera

Acmœodera vanduzeei Van Dyke
Adetus vanduzeei Linsley.
Cylindrocopturus vanduzeei Van Dyke.
Dasytastes vanduzeei Blaisdell.
Eleodes vanduzeei Blaisdell.
Eusaltus vanduzeei Blaisdell.
Listrus vanduzeei Blaisdell.
Neoclytus vanduzeei Van Dyke.
Stenopodinus vanduzeei Blaisdell.
Stenoptochus vanduzeei Van Dyke.
Trichochrous vanduzeei Blaisdell.

Lepidoptera

Gelechia vanduzeei Keifer.
Graptolitha vanduzeei Barnes.
Lycæna editha ab. *vanduzeei* Gunder.
Melitæa palla whitneyi ab. *vanduzeei* Gunder.
Pero vanduzeeata Wright.
Xylomyges vanduzeei Barnes and Benjamin.

Hymenoptera

Andrena vanduzeei Linsley.
Anthidium p. vanduzeei Cockerell.
Centris vanduzeei Cockerell.
Ceratina arizonensis vanduzeei Cockerell.
Halictus vanduzeei Sandhouse and Cockerell.
Megachile vanduzeei Cockerell.
Melissodes catalinensis vanduzeei Cockerell.
Nomia howardi vanduzeei Cockerell.
Oreopasites vanduzeei Cockerell.
Osmia vanduzeei Sandhouse.
Perdita vanduzeei Cockerell.

Diptera

Ablautus vanduzeei Wilcox.
Amphicosmus vanduzeei Cole.
Cyrtopogon vanduzeei Wilcox and Martin.
Euparyphus vanduzeei James.
Lissoteles vanduzeei Cole.
Nannocyrtopogon vanduzeei Wilcox and Martin.
Pegomyia vanduzeei Malloch.
Pipiza vanduzeei Curran.
Sapromyza vanduzeei Cresson.
Thereva vanduzeei Cole.
Ulomorpha vanduzeei Alexander.
Villa vanduzeei Cole.

Species, Genera and Higher Group Names Proposed by E. P. Van Duzee[3]

HETEROPTERA

Plataspidæ

Brachyplatys nitidiceps, 250:178.

Scutelleridæ

Coleotichus **adamsoni,** 199:177.
Eurygaster **carinatus,** 45:18.
Homæmus **variegatus,** 72:3.
Odontoscelis **balli,** 45:19.
producta, 45:20.
Phimodera **corrugata,** 45:16.
Vanduzeeina **californica,** 108:391.
borealis, 108:392.

Cydnidæ

Corimelæna **californica,** 160:10.
gillettii, 45:8.
sayi, n. n., 45:10.
Cydnoides **arizonensis,** 101:304.
Euryscytus **diminutus,** 101:305.
Thyreocorinæ, n. subfam., 51:5.
Thyreocoris **cognatus,** 51:6.
montanus, 57:231.
Geotomus **murinus,** 202:26.
noctivagus, 97:125.
Psectrocephalus, n. g., 95:270.
cæcus, 95:271.

Pentatomidæ

Acanthosoma cruciata var. **cooleyi,** 45:74.
atricornis, 45:75.
Andriscus **cinctus,** 46:213.
terminalis, 46:213.
Antestia **oliva,** 46:206.
Apateticus **anatarius,** 225:27.
Menida **cockerelli,** 166:93.
Mormidea (Melanochila) **purpurescens,** 196:93.
Neopharnus, n. g., 62:73.
fimbriatus, 62:73.
Œchalia **virgula,** 232:220.
hirtipes, 232:221.

[3] Prepared by R. L. Usinger.

Apines geminata, 46:206.
Arocera elongata, 236:25.
repleta, 196:94.
Banasa bidens, 218:170.
subcarnea, 225:26.
Brepholoxa, n. g., 45:78.
heidemanni, 45:78.
Brochymena affinis, 45:29.
apiculata, 97:126.
hoppingi, 90:111.
pilatei, 214:22.
punctata, 58:369.
sulcata, 86:276.
Carpocoris sulcatus, 86:275.
Catacanthus eximius, 236:27.
Chlorocoris æmulus, 196:93.
Cuspicona carneola, 46:207.
beutenmülleri, 46:208.
Edessa chelonia, 51:11.
Euschistus ursus, 51:8.
inflatus, 44:107.
Glaucias venustus, 217:314.
Kyrtalus, n. g., 166:91.
mackiei, 166:92.
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NEW SPECIES OF HEMIPTERA COLLECTED BY THE TEMPLETON CROCKER EXPEDITION TO THE SOLOMON ISLANDS IN 1933

BY EDWARD P. VAN DUZEE[1]

PLATASPIDÆ

Brachyplatys nitidiceps Van Duzee, new species

Closely related to *obscurus* Montd. from New Guinea; deep polished black; head smooth, polished, eyes bright vermillion red; a submarginal line on the sides of the pronotum anteriorly, base of costa and abdominal margins yellowish; antennæ, rostrum, tibiæ and tarsi ochraceous. Length 6 mm.

Head short, almost truncate before, one-half as long as wide betwen the eyes, five-eighths as wide as pronotum across the humeri, its surface smooth and polished, without visible punctures or rugæ; cheeks valvate, disk depressed; ocelli small, red, distance between them one-half greater than that to the eye. Pronotum short, its length three-eighths its humeral width, sides but moderately arcuate the humeri but little prominent; punctures obsolete or nearly so. Scutellum transverse, the ratio of length to width as 11::18, one-sixth wider posteriorly; punctures very small, distant, subobsolete, becoming quite so on base and on the lateral areas, especially posteriorly; apex deeply excavated as usual in the males of this genus. Antennal segments as 9:3:10:10:11. Rostrum attaining apex of hind coxæ. Ostiolar orifices small, their distance from coxæ twice that from sides of the metapleuræ, canal narrow, polished, black, flat, with carinate margins, slightly widened and curved anteriorly at apex which attains margin of the opaque area. Venter polished, impunctate, with very feeble transverse rugæ; segment VI produced anteriorly in a sharp triangle to apical margin of IV, V being cut through at center. Genital segment truncate at apex, when extended nearly quadrangular if viewed from below, the side margins but little thickened apically; fringe of pale hair on the basal fova forming two hooks, their common median stalk slender, not thickened as in *subæneus*.

Color deep polished black, eyes vermillion red; a submarginal line on pronotum before the humeri, reproduced below, a short vitta on base of elytra, a suggestion of a submarginal line about the apex of the scutellum, an eroded vitta on abdominal margin, a nearly obsolete point behind the stigmata on segments II, III, and IV, and rostrum, pale yellowish; antennæ dusky yellow,

[1] This posthumous article has been prepared by the editor from the unpublished manuscripts of the late E. P. Van Duzee. At the time of his death Mr. Van Duzee was in the midst of a general study of the entire Hemipterous fauna of the Solomon Islands.

segment I piceous, pale at extreme apex; femora piceous black; tibiæ and tarsi dusky ochraceous; tip of claws black; whole sternal and pectoral region opaque plumbeous-gray, the outer angle of metapleura only polished black, the acetabula piceous to pale; base of head beneath with a yellowish spot either side the rostral canal; a very faint castaneous mark discernible on base of scutellum above elytral sinus.

Holotype, male, No. 5125, Calif. Acad. Sci., Ent., and one male paratype, taken by Maurice Willows at Uras Cove, Malaita Island, Solomon Islands, May 28, 1933. This species pertains to section "a" in Stål's synopsis (Enum. Hemipt., V, p. 7, 1876), which includes *deplanatus* Erich. from the Philippine Islands and *obscurus* Montandon from New Guinea. It can be distinguished from *deplanatus* at once by its nearly impunctate surface. It is much nearer *obscurus* but the puncturation of the scutellum is different, the head wants the feeble rugæ, the color markings are much reduced, a character undoubtedly subject to variation, and there are other differences as indicated in the above description. With our present limited knowledge of this group I believe it best to consider it as a distinct species but the study of material from other islands may lead us to place it as a subspecies of *obscurus*.

PENTATOMIDÆ

Vitellus ensifer Van Duzee, new species

Apparently closely allied to *pungens* Montr. from the island of Woodlark but differing distinctly in the form of the metasternal carina; pale greenish olivaceous, humeral spines rather short, obtuse, slightly recurved. Length 11 mm.

Head as long before the eyes as wide between them, broadly sinuate either side, subangularly narrowed anteriorly; tylus scarcely exceeding the cheeks, surface impunctate, transversely wrinkled. Pronotum more than three times as wide across the humeri as long; anterior submargin sulcate, carrying a single row of large confluent punctures that become irregular at the anterior angle; callosities impunctate, the rest of the surface coarsely, sparsely punctate; sides straight, calloused, humeri forming a short nearly terete blunt spine; hind margin deeply sinuate, the posterior angles prominent, rounded. Scutellum as long as broad at base, apex sharply angled above the depressed surface which forms a broadly rounded plate beneath the inner angle of the elytra, disk sparsely, coarsely punctate, the sides

more finely so, frenum occupying five-sevenths the length of the scutellum. Elytral punctures coarse and discolored on claval region, fine and closer on corium; membrane hyaline. Rostrum long, segment I slightly surpassing the bucculæ, II a little longer than III (25::30), IV equal to III. Bucculæ widest and obtusely angled anteriorly, their margins sinuate. Prosternal lamina attaining apex of first rostral segment, its apex obtusely triangular; its margin broadly sinuate, distally cleft for the reception of the ventral tubercle. Segments I to V of connexivum each armed with a small tooth, VI with an acutely triangular black-tipped spine. Genital segment sinuate next the prominent lateral angles, with a small median notch; styles linear with an almost knob-like apex that very nearly attains the outer angle of the segment; venter and margin of pleural pieces impunctate, polished. Ostiolar canal long.

Color greenish testaceous; antennæ apically, and tip of humeral spines and the genital segment slightly infuscated; apex of rostrum and tips of the claws black; ocelli red.

Holotype, a unique male, No. 5126, Calif. Acad. Sci., Ent., taken by Maurice Willows at the northwest end of Bellona Island, June 22, 1933. This insect comes nearest to *pungens* but the shape of the mesosternal lamina will at once distinguish it.

Coreidæ

Amblypelta costalis Van Duzee, new species

Pale testaceous-yellow, pronotum posteriorly, scutellum and elytra pale castaneous brown, costa lineate with whitish and black. Length 14 mm.

Head shorter than pronotum as 36::50, nearly horizontal, ocelli placed midway between median line of vertex and eyes, bucculæ as long as dorsal width of head between antennal sockets, highest anteriorly. Rostrum attaining middle of ventral II, segment I attaining margin of prosternum, II as long as I, III shortest, IV longest. Anterior margin of prosternum feebly sinuate, mesosternum feebly sulcate. Antennæ a little longer than the entire body, the segments as 65:80:55:68, I slightly thicker apically, feebly triquetrous. Pronotum wider across the humeri than long, 8::5; humeri short-spinose; posterior submargin with an abbreviated transverse ruga. Scutellum as long as wide, truncate at extreme apex. Venter feebly sulcate at base. Legs slender, unarmed. Pronotum, scutellum, elytra and pectus closely, coarsely punctate, head obsoletely punctate, venter shagreened.

Color pale testaceous-yellow, ocelli and eyes reddish; antennal I with tip and an obscure line above blackish, II and III narrowly black at apex, IV blackish with nearly its basal half croceous, the incisure black; basal two-thirds of costa narrowly whitish, limited within by a broader black vitta; membrane fuliginous; extreme tip of scutellum and of the rostrum and tarsal claws black; tibiæ and tarsi clothed with pale hairs; minute plates at apex of femora black.

Genital segment of male with a broad, shallow sinus; plici of sixth ventral of female broadly arcuate, the fissure behind this plica subacute, attaining the plica.

Holotype, male, No. 5127, and allotype, female, No. 5128, Calif. Acad. Sci., Ent., and five male paratypes taken by Maurice Willows, Jr., June 22, 1933, at the northwest end of Bellona Island, Solomon Islands. Larger than either *bilineata* Stål or *nitida* Stål[2].

Lygæidæ

Scopiastes lepidus ventralis Van Duzee, new subspecies

Agrees with Horvath's description (Ann. Mus. Nat. Hung., 12:631, 1914) in all structural details. Color rufofulvous, eyes black, antennals II and III, posterior lobe of pronotum, elytra, hind margins of propleura, and the meso and metapleura and usually the scutellum infuscated or piceous; antennals IV fulvous or more or less infuscated, scutellum rufous in one specimen, apical two segments of rostrum black; tibiæ and tarsi sometimes tinged with fuscous. Length 8 mm.

Holotype, female, No. 5129, Calif. Acad. Sci., Ent., and two female paratypes taken June 23, 1933, at the northwest end of Bellona Island, Solomon Islands.

This can hardly be considered specifically distinct from *lepidus*, from the same island group, but here the venter is entirely rufo-fulvous, the ostiolar orifices are reddish and the apex of the clypeus is not black. The depth of infuscation on the pronotum, scutellum, elytra, etc. varies from fulvous to piceous but is scarcely blue-black. It is conceivable that this is merely a color form that might be found in a single brood but the chances are that it is a local variation developed on a different island. Dr. Horvath does not state on which island his material was taken.

[2] *Amblypelta gallegonis* Lever (Ann. Mag. Nat. Hist., (10) 17:324, 1936) is not available for comparison but was described from the Solomon Islands and may be identical with the above. Editor.

Nysius villicus Van Duzee, new species

Allied to *ericæ* but with the sides of the pronotum straight and the antennæ more slender. Length, 4 mm.

Head strongly punctured, produced between the eyes about as in *ericæ;* black, the pale vittæ on clypeus and on each side of it much obscured, especially in male; basal spot small but obvious; cheeks with a pale mark below eyes; bucculæ shorter than in *ericæ*, not attaining base of head, their margins feebly arcuate. Antennæ thinner than in *ericæ;* segments in the male as 6:15:13:15; pale tinged with fulvous; IV slightly infuscated, I black above, II blackish at base and apex, III very narrowly so. Pronotum black or blackish, anterior margin obscurely and six longitudinal vittæ on posterior lobe more or less distinctly fulvous, the hind margin with a median pale mark as in *ericæ*. Scutellum polished, black, its extreme tip only pale. Base of elytra parallel for about basal fourth, then moderately expanded, nearly parallel beyond the middle; whitish hyaline, the nervures more or less infuscated, the apical margin with three blackish marks that rarely become connected. Legs pale yellowish with numerous black points that are larger beneath, tips of tarsi infuscated. Body beneath black, the bucculæ and acetabula whitish; metapleura moderately excavated; expanded dorsal and ventral flaps whitish; margins of the pro- and mesopleuræ obscurely fulvous. Rostrum attaining hind coxæ, segment I barely exceeding bucculæ in male, a little larger in female. Venter black, the sides and a subapical discal spot yellowish fulvous, more extended in the female.

Holotype, male, No. 5130, allotype, female, No. 5131, Calif. Acad. Sci., Ent., and three male and three female paratypes taken at the Tal Lagoon on Malaita Island, Solomon Islands, May 30, 1933. One male and three females taken at Mohawk Bay, Matema Island, in the Santa Cruz group have the sides of the scutellum paler and the membrane longitudinally vittate with fuscous but with so little material I would not feel justified in assigning them even subspecific rank. More material from adjacent islands should be studied.

Nysius femoratus Van Duzee, new species

Aspect of *villicus* but differing in the black polished femora and first antennal segment. Length, 3 mm.

Eyes large; head across eyes nearly as wide as basal width of pronotum, 18::22; dull fulvous brown, median line anteriorly and a broad lateral vitta next the eyes and beneath black; bucculæ low, not quite reaching to base of head, slightly lower posteriorly, narrowly pale. Rostrum attaining hind coxæ, segment I hardly surpassing bucculæ. Antennæ rather short, segment I strongly incrassate for this genus; relative lengths of segments as 6:13:10:12; sides rectilinear, about one-fifth wider at humeri than anteriorly, 22::15; brownish fulvous, black anteriorly with median vitta and a mark behind each eye pale; posteriorly black sending a median vitta and another either side to connect with anterior black area; humeri polished black; scutellum black, the extreme tip of smooth median line pale. Elytra whitish hyaline, a spot on inner angle of clavus connecting with the commissure and about three vittæ on the corium and radial vein in part fuscous; membrane hyaline, a median vitta widened behind fuscous. Beneath black with anterior margin and a lateral spot on propleura, ostiolar orifice, and some marks exterior to it fulvous brown; posterior metapleural margin narrow, the exterior angle whitish; disk of venter with a pale spot posteriorly. Legs pale testaceous yellowish, the femora, except at apex, black, polished, tips of tarsi infuscated. Whole surface, elytra excepted, polished, coarsely punctate, clothed in part with very minute pale hairs.

Holotype, a unique female, No. 5132, Calif. Acad. Sci., Ent., taken on Anuda Island, just east of the Santa Cruz Islands, July 15, 1933.

Orthæa oculata Van Duzee, new species

Belonging to Stål's subgenus *Diplonotus*, section "ss" with the posterior lobe of the pronotum strongly punctate, the anterior lobe shorter than in *nigriceps* Dallas; castaneous-brown, head black, corium with a large rounded preapical pale spot, legs pale, antennal IV largely white. Length, 6 mm.

Head produced, longer than in *nigriceps;* polished, with minute golden hairs laterally before the antennæ; a little narrower than the anterior pronotal lobe, 18::21. Pronotum two-thirds as long as humeral width; anterior lobe as long as posterior, its length about one-half its basal width, 10::21, but moderately elevated, with a median band of shallow punctures, otherwise impunctate; collum strongly distinguished, with a single row of punctures; incised line shallow; posterior lobe strongly punctured, with a median line and the humeri smooth. Scutellum strongly punctate, with the usual Y slightly prominent, smooth. Elytra coarsely punctate, the median area nearly smooth, nervures prominent;

costa narrowly reflexed, its edge minutely serrate. Antennæ long, segment I passing tylus by one-half its length; segments as 12:18:21:24. Rostrum attaining hind coxæ. Anterior femora less incrassate than in *nigriceps*, with one subapical spine and two or three setaceous papillæ.

Color dark chestnut brown; head polished, black; tip of tylus paler; neck under the collum ochraceous either side; hind lobe of pronotum with an ochraceous vitta each side of the median line; reflexed elytral costa, veins more or less, base of corium, a small spot near inner angle and a large rounded one before apex ochraceous or whitish; legs, including coxæ, entirely pale yellowish; antennæ castaneous, narrow apex of segments II and III brown, IV white, the narrow base and apical third brown; beneath black, venter dark brown, rostrum pale. Superior surface nude, except for minute golden pubescence on head anteriorly and portions of antennæ.

Holotype, female, No. 5133, Calif. Acad. Sci., Ent., and one female paratype, taken at Uras Cove, Malaita Island, Solomon Islands, May 28, 1933. In the type the ocular pale spot at apex of corium is very conspicuous, less so on the paratype.

Dieuches finitimus Van Duzee, new species

In Stål's key (Enum. Hemipt., IV, p. 161, 1874) this species runs to *atricornis* Stål but is evidently distinct; black, becoming piceous on the legs and antennæ; pronotum and elytra with yellowish markings. Length, 7 mm.

Head about as in *consanguineous*, opaque, impunctate. Antennal segments as 16:30:30:30; segment I exceeding tylus by one-half its length. Segment I of rostrum attaining apex of head. Pronotum nearly as long as its basal width, laminate margins strongly reflexed, scarcely attaining the humeral angles; transverse depression deep; anterior lobe moderately convex, impunctate either side of the middle, finely punctate laterally; posterior lobe coarsely punctate. Median area of corium mostly smooth. Anterior femora moderately incrassate with a percurrent double row of short teeth; anterior tibiæ widened apically with a few small teeth.

Color black, becoming dark castaneous on head and piceous or brown on feet and antennæ; median line and two spots either side on hind lobe of pronotum, two discal points on scutellum, a short basal vitta on clavus, a short line on radial vein, a basal line on subcosta, an oblique spot or vitta before apex of corium, and a marginal spot on fourth and fifth connexival segments yellowish; narrow expanded costa to beyond middle and reflexed margin of

pronotum white, the latter becoming black over humeri, base of intermediate and hind femora whitish; intermediate tibiæ and tarsi, anterior at base, antennal I, base and apex of II, and base of III and IV paler brown or yellowish; membrane black.

Holotype, male, No. 5134, Calif. Acad. Sci., Ent., a unique taken at Kungava Bay, Rennell Island, Solomon Islands, June 16, 1933. In this species the transverse black elytral band is much obscured by the blackish shade of the elytra.

Reduviidæ

Euagoras crockeri Van Duzee, new species

Size and aspect of *asseda* Stål but paler, rufo-fulvous; posterior lobe of head anteriorly and sometimes anterior lobe as far as base of antennæ more or less clouded with fuscous, at times becoming black; antennæ fuscous or almost black, segment I longer than head, pronotum, and scutellum together, with a very broad obscure pale annulus before middle and a white subapical annulus as wide as width of anterior lobe of pronotum, segment II one-third as long as I with an obscure paler median annulus, III and IV fuscous, III shorter than I, IV longer. Extreme tip of rostrum darker. Anterior tubercules of pronotum subacuate, directed outward; humeral spines long, directed outward and backward, mostly black; disk between these spines often with a black spot; clavus and inner margin of corium black; membrane fuscous, paler exteriorly; meso and metapleura and sides of ventrals IV and V with a large black spot; tips of femora, tibiæ, and tarsi black. The specimens from San Christoval Island differ in having the legs paler, the tibiæ and tarsi sometimes scarcely enfumed, the anterior femora usually with a black line, the posterior with two narrow fuscous annuli, one subapical, the other median. These also usually want the blackish discal spot on the pronotum. Length, 15 mm.

Holotype, male, No. 5135, and allotype, female, No. 5136, Calif. Acad. Sci., Ent., taken June 22, 1933, by Maurice Willows at the northwest end of Bellona Island; six paratypes and one nymph, same data; one male paratype, wanting the black thoracic spot, taken May 20, Kau Kau Plantation, Guadalcanar Island, by Mr. Willows. Six adults and one nymph from Star Harbor, San Christoval Island, July 1-3, differ only in the color of the legs but this character varies so that the legs may be entirely pale. In the typical form of this species the dark head and black knees are conspicuous characters.

CERCOPIDÆ

Genus CLOVIA Stål

This genus is represented in the Solomon Islands by a group of species characterized by a transverse median elytral vitta, usually more or less oblique, at least on the corium, and by an oblique, or almost longitudinal, apical vitta from behind the middle of the costa, toward but not attaining the apex of the elytra, this last usually broken into two maculæ of varying size and shape. In most of the species known to me the pronotum and vertex are transversely banded. This group of species is largely represented in New Guinea and adjacent island groups. The genus is found in Africa and over much of Oceanica, at least as far north as the Philippines. A good idea of this group, showing the form and pattern of marking, can be had by turning to the *Records of the Indian Museum*, Vol. III, plate 10, figure 9 (*moresbyensis* Distant) or the *Genera Insectorum*, fasc. 143, plate 2, figure 4 (*caput-ranæ* LeGuillon). The five species here described are closely, minutely punctate above, each puncture with a short pale hair. The following key will help to separate these species.

1. Apical pale vitta of corium entire as in *caput-ranæ*..... .....*fraternus* n. sp.
–. Apical vitta of corium broken into two spots.....2
2. Larger (11.5 mm.); head, pronotum and scutellum black, non-vittate; median elytral vitta transverse.....*lugubris* n. sp.
–. Smaller (5-9 mm.) head and pronotum transversely vittate....3
3. Head and pronotum pale yellow vittate with brown; scutellum and base of clavus to the transverse vitta also pale..... .....*clitellaria* n. sp.
–. Scutellum and base of clavus black or dark brown.....4
4. Median elytral vitta strongly oblique, with the broken apical vitta much reduced.....*crockeri* n. sp.
–. Median elytral vitta heavier, transverse on clavus, deflected posteriorly on corium; apical vitta forming two broad longitudinal vittæ, the costal acuminate posteriorly.....*sera* n. sp.

Clovia fraternus Van Duzee, new species

Near *antoni* and *formosula* Schmidt. Dark brown; vertex pale croceous with median and subapical vittæ; pronotum with one croceous vitta and an entire oblique apical vitta. Length, 7.5 mm.

Vertex a little shorter than broad between eyes (4::5), more produced than in the other species here described; pale yellow with a broad brown vitta between anterior angles of eyes and a shorter one on superior aspect of front; anterior edge slenderly black. Pronotum brown, darker posteriorly, with a complete bright croceous transverse vitta before middle, hind margin deeply excavated before scutellum, the latter dark brown. Elytra brown, becoming black medianly. Median vitta transverse on clavus, becoming moderately oblique and contracted to an obtuse point on corium and attaining middle of costal area; apical vitta entire, beginning behind middle of costa, running narrow and straight to beyond middle of corium, its apex broader and bent posteriorly. Face dark brown with a pale median vitta, broad on front and covering most of clypeus; base of front with a bright croceous vitta that passes under eyes, widens on propleura and fades out on mesopleura, this vitta bordered with black which becomes deep polished black behind eyes; base of femora, tibiæ and tarsi more or less embrowned. Male genital segment a little more than twice as long as its median width, narrowed to an obtuse apex.

Holotype, male, No. 5137, Calif. Acad. Sci., Ent., taken on the Island of Santa Catalina, Solomon Islands, July 2, 1933, by Maurice Willows. This insect pertains to the group represented by *caput-ranæ*, and seems to find its nearest relatives in *antoni* Schmidt and *formosula* Schmidt. From *antoni* it differs by the immaculate scutellum, in the median vitta not attaining the costa, and in the different genital characters. From *formosula* it differs in the shorter vertex, the longer median elytral vitta and the shorter and broader genital segment of the male.

Clovia clitellaria Van Duzee, new species

Apparently allied to *polita* Schmidt. Elytra ovate, the costa strongly arcuate; pale yellowish, two transverse bands on the vertex, three on the pronotum and much of the elytra blackish; whole of the surface above closely minutely punctate and clothed with short pale hairs. Length, 10 mm.

Vertex flat, one-half broader between eyes than long, obtusely angled at apex; a broad black band crossing at anterior angle of eyes, before which is a shorter brown band on reflexed base of front. Pronotum pale yellow with median and apical black bands, the latero-posterior and posterior margins narrowly black. Scutellum pale yellow. Elytra blackish fuscous with the following pale yellow areas: base of clavus to apex of scutellum, omitting slender

scutellar margin, a broad transverse band just beyond, scarcely attaining costa and sometimes connected with claval saddle, narrowed from radius to claval suture; apical oblique band broken into two subequal spots; apical submargin of elytra marked by a ferruginous band which includes the apical one-third of the clavus where it is most pronounced. Beneath pale yellow becoming somewhat testaceous on front and legs with the following black markings: a slender polished line on base of front, a broken longitudinal vitta behind eyes and another crossing pro- and mesopleuræ, apex of rostrum, tarsi above, tips of tibial spines and tibiæ more or less, embrowned; frontal striæ slightly darkened; female oviduct and tips of the male plates also blackened. Tergum apparently largely black. Wings hyaline with fuscous veins. Prothoracic epipleura distinctly wrinkled transversely to eyes. Extreme tip of scutellum blackened. Male plates parallel, truncate at apex, one-half longer than wide; valve square at apex, as long as broad.

Holotype, male, No. 5138, and allotype, female, No. 5139, Calif. Acad. Sci., Ent., taken at Mohawk Bay, Matema Island, Santa Cruz group, July 10, 1933, and three paratypes taken on Nupani Island, Santa Cruz group, May 8, 1933, by Maurice Willows. One male taken on Guadalcanar Island, Solomon Islands, in December, 1920, by J. August Kusche differs in having the elytra browner, the ferruginous apex of the clavus extended broadly onto the corium, the basal "saddle" of the clavus smaller, the oblique yellow apical spots larger and the pronotum anteriorly longitudinally rugose.

Clovia crockeri Van Duzee, new species

Pale yellow beneath, fuscous brown above with three pale transverse vittæ on the vertex, one on the pronotum, an abbreviated oblique median vitta and two subapical spots placed obliquely on the corium. Length, 8.5-10 mm., averaging smaller than *clitellaria*.

Vertex shorter than in *clitellaria*, its length three-fifths its width between the eyes. More finely punctured above than in *clitellaria*, the punctures becoming fine transverse rugæ on scutellum and partially so on pronotum posteriorly; pronotum anteriorly with a slender but distinct longitudinal carina which in some individuals may become more or less obsolete. Color fuscous brown above, vertex, a transverse vitta before middle of pronotum, a transversely oblique subinterrupted elytral vitta at apex of scutellum running from radial vein almost to commissure and angled at claval suture, and two subapical spots, whitish; vertex

with a median transverse vitta and a shorter one on reflexed base of front, brown. Front pale ferruginous with paler lateral striæ; basal margin of front black, bordered below by a pale vitta which extends back along sides of pleuræ. Legs testaceous-yellow, more or less embrowned, especially on tibiæ exteriorly and on tarsi; disk of sternum and venter pale yellow. Tergum, at least laterally, black. Prothoracic epipleuræ very narrow and smooth.

Holotype, male, No. 5140, and allotype, female, No. 5141, Calif. Acad. Sci., Ent., taken at Star Harbor, San Christoval Island, Solomon Islands, July 1, 1933, (holotype) and July 3, 1933 (allotype) by Maurice Willows. Paratypes, one female taken with the allotype and another taken at Mohawk Bay, Matema Island, Santa Cruz group, July 8, 1933. These paratypes are slightly larger than the types. The pale brown color, narrow shorter and more oblique median vitta, and the smaller subapical spots will most readily distinguish this species. The vestiture and punctation, except as noted, is similar in the species here described. In the present species the male genital segment is shorter and narrower at apex than in *clitellaria*.

Clovia sera Van Duzee, new species

Size and aspect of *crockeri* but more heavily marked with pale, the median elytral vitta transverse across the clavus, the apical vittæ heavier. Length, 9 mm.

Vertex slightly shorter than its width between eyes, polished black; disk with a blackish band between eyes and a shorter one before this, crossing reflexed base of front. Pronotum, scutellum and elytra blackish fuscous; pronotum with a transverse croceous vitta about its own width behind anterior margin. Elytra with a whitish vitta behind apex of scutellum, transverse across clavus, then oblique, terminating on radial nervure; posterior vitta in form of two elongated spots, the outer lying on costa, its inner margin following radial nervure along which it is produced to a point posteriorly and is as long as width of corium; inner spot forming a longitudinal vitta as long as greatest width of elytron and directed toward elytral apex; an indefinite costal area opposite transverse vitta and inner margin behind that vitta to near apex of corium more or less tinged with brown, and with a similar mark against costa exterior to apical vitta. Front and beneath honey yellow; base of front with a concentric pale vitta; tip of rostrum, a lateral vitta next the coxæ, tibiæ exteriorly and tarsi mostly, black; connexivum and apparently tergum black, polished.

Holotype, male, No. 5142, Mus. Calif. Acad. Sci., Ent., taken at Uras Cove, Malaita Island, Solomon Islands, May 28, 1933, by Maurice Willows. This species is near *crockeri* but the markings are broader, the transverse band becoming oblique only as it approaches the radial nervure. The pale color on the vertex and pronotum is more of a croceous and the male genital segment is much longer, more as in *clitellaria*.

Clovia lugubris Van Duzee, new species

A large black species, pale beneath, elytra with the usual pale vitta and a castaneous vitta about the apical margin. Length, 11.5 mm.

Vertex bluntly angled, distinctly broader between eyes than long (7::5); reflexed base of front more coarsely punctured than rest of upper surface. Above black; short impressed line behind eyes pale as in allied species. Pronotum with a very slender median carina on anterior one-third. Median transverse vitta of elytra whitish, but slightly oblique, terminating on radial nervure; apical spots small, the costal spot one-half its width from costal margin; apical spot about three times as long as costal; apical margin with a castaneous vitta from a little behind transverse vitta almost to apex, the margin slenderly black. Beneath pale yellowish, legs and front more croceous becoming castaneous on front; base of front with a polished pale vitta that is carried back broadly onto mesopleura and is bordered with black. Tibiæ exteriorly, tarsi and female oviduct black.

Holotype, a unique female, No. 5143, Calif. Acad. Sci., Ent., taken at Tal Lagoon, Malaita Island, Solomon Islands, May 29, 1933, by Maurice Willows. This species is quite distinct in its larger size, black color, short nearly straight median vitta and small apical spots on the elytra.

Fulgoridæ

Bennaria venosa Van Duzee, new species

Pale testaceous, the elytra whitish with fuscous veins. Length, 7 mm. to tip of elytra.

Vertex transverse, its median length one-half its anterior width, hind margin angularly emarginate, surface somewhat depressed, sides carinate, median line slenderly impressed. Front a little more than twice as long as its greatest width, 21::9, sides

strongly, obliquely elevated, median carina wanting; clypeus narrow, longer than front, median carina prominent; antennal segment II twice as long as wide. Pronotum one-fourth longer than anterior width of vertex; lateral carinæ sharp, median obsolete. Mesonotum tricarinate, the median slender. Elytra nearly three times as long as wide, 14::5, subcostal and inner claval veins weak, others heavy, all obscure close to base. Abdominal appendages two-thirds the length of anterior femora. Male plates as long as pygofer, approximate only at middle; their sides nearly parallel beyond middle, somewhat expanded at their rounded apex.

Color yellowish testaceous, tinged with brown on head, mesonotum, and coxæ, with some white bloom in places beneath; carinæ of head slenderly edged with brown; wings opaque whitish with brown nervures; pale apical margin closely transversely crenulate.

Holotype, male, No. 5144, Calif. Acad. Sci., Ent., a unique taken on the northwest end of Bellona Island, Solomon Islands, June 21, 1933. The articulated and apparently moveable abdominal appendages are a most remarkable feature of this genus and of *Benna* Walker. The type of this genus was described from the Philippines and is characterized by a round black spot near the inner angle of the elytra. The genus seems to differ from *Benna* principally in wanting a median carina on the front.

Ricania sigillata Van Duzee, new species

Form and general aspect of *pulverosa* but pale brown with a smaller stigmal spot; elytra with an apical black point and obscurely liturate with paler. Length of body, 5 mm., expanse, 17 mm.

Head broad as in *Euricania tristicula;* vertex seven times as wide as its median length, without a median carina; front subvertical above, tricarinate basally; subapical transverse carina not attaining elevated marginal carinæ; clypeus ecarinate; pronotum three times as long as vertex, its median carina abbreviated anteriorly; mesonotum tricarinate, the lateral forked anteriorly as in related species, not attaining margin posteriorly, anteriorly meeting median near pronotal margin. Elytra short triangular, the apical margin equal to claval suture; costal membrane nearly twice as wide as costal areole; radial and subradial nervures straight, parallel, forking from basal cell; costal membrane with about twenty transverse veins to stigma, two obvious lines of transverse veins, anterior to the basal of these transverse lines the two arcuate folds are distinct on disk.

Color brown, beneath and legs pale; margins of basal two genital sclerites marked with a deep black calloused line; elytra brown liturate with transverse pale lines or veins basally; costal membrane and clavus paler, the femora with two fuscous clouds before stigma; white stigmal spot small and obscured distally where it connects with a white mark and is followed by a black longitudinal mark; apex with a round black point anterior to which is a larger polished fuscous spot; wings dusky hyaline, darker at apex, veins fuscous.

Holotype, a unique female, No. 5145, Calif. Acad. Sci., Ent., taken by Mr. Willows at Uras Cove, Malaita Island, Solomon Islands, May 28, 1933. This species runs to *fumosa* in Melichar's key of 1898 but is quite distinct.

Ricania corusca Van Duzee, new species

Size of *pulverosa* but with broader elytra; uniformly polished fuscous brown with a small white stigmal spot. Length to tip of abdomen, 5 mm.; expanse, 16 mm.

Head broad as in *tristicula;* median length of vertex one-seventh its width, no median carina; front transverse, its sides elevated, broadly arcuate; discal carinæ complete, connecting with subapical transverse carina, prominent basally, becoming evanescent apically; median compartment longitudinally obscurely striate; clypeus ecarinate. Pro- and mesonotum as in *sigillata.* Elytra a little longer than wide (12::10); costal membrane but little broader than costal areole; radial vein forking some distance from basal areole, the two forks running about parallel to stigma; costal and apical margins with a row of short stiff hairs, each set in a black dot; transverse nervures few but forming two subapical lines.

Color yellowish brown; pro- and mesonotum blackish fuscous, tinged with castaneous between lateral carinæ; tergal segments with a pale vitta near base of each segment; under surface and legs pale, the femora and a large tumid area on mesopleura brown; elytra deep fuscous hyaline, polished, with a metallic purplish black reflection in certain lights, more noticeable toward apical margin; costa with a small oblique white mark at stigma; costal vein reddish, base of radial vein pale; a polished black spot indicated before apex of elytra; wings whitish hyaline, narrow, pale brown, becoming slightly enfumed toward apex.

Holotype, a unique female, No. 5146, Calif. Acad. Sci., Ent., taken by Maurice Willows on Santa Catalina Island, Solomon Islands, July 2, 1933.

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